

## Testing the Vision of Illiterates and Young Children\*

By R. M. PECKHAM.

### The Drawing Method

Most children like to draw pictures. Few can draw very well, but the joy of creation, the pride of something done by oneself, offsets the lack of technical skill. The child draws a picture and says it represents something—and to him his own drawing is usually satisfactory. If he perceives it is not an exact reproduction of the object, he will tell you, "This is a boy," "This is a cat." Often, older children will label their masterpieces, "boy," "cat," so that the unseeing, unappreciative, unimaginative adult will understand.

A great many familiar objects can be drawn in outline, the lines of the drawings of the proper widths to meet the 1ft. visual angle requirements for various distances. Few of these outline drawings can be kept within the 5ft. angle block without distortion, but the 5ft. angle is not a part of the requirement for testing visual discrimination. The 5ft. angle block came about as a corollary of drawing letters and numerals so that the width of their limbs and the spaces between the limbs should conform to the 1ft. angle.

Such a series of test characters can be prepared and set before the child, to whom paper and pencil are given. He will make copies of what he sees. In this way, the play factor is introduced, the interest factor is awakened, the bashfulness factor is eliminated, since oral response is not demanded. Most of the children reaching our offices are already in the kindergarten or first grade, and a part of the regular school work is drawing pictures, the reproduction of pictures either drawn on the blackboard by the teacher, or presented in wall charts. Even very small children, younger than the public kindergarten age, have been given pencil or crayon at home with which to amuse themselves. If such home care is lacking, the little urchins pick up the ideas of picture drawing from their older street playmates, who give them bits of crayon swiped from the school. Sidewalk artistry is too common to need comment, save to

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demonstrate that the child himself has furnished us with a sight testing method that we, in our adult blindness, have overlooked until very recently.

I do not know who first thought of finding out how well a child could see by setting up pictures for him to copy. Several optometrists and oculists have told me about it, in different parts of the country. As near as I can make out, in most instances the idea originated, not in the self centred doctor's mind, but by the practical humble "office girl," who, by the way, is usually the real brain of the average refractionist's office.

This is evidently one of those fine, useful ideas that occur to quite a number of people at about the same time, none of them knowing that someone else had the same idea. The odd part of it is that no one has written about it, although I have seen the method in use in a good many offices. Some seem to think it is not "scientific" enough to be worthy of written presentation. This is far more "scientific" than the theories about convergence and accommodation these same men do write about.

To make some of the characters red, some blue, some green, and so on, enables you to make a rough test of the child's colour sense. If you use some coloured tests give the child pencils of the same colours for his drawing.

The child should be seated at a low table, with a low chair, so his feet are firmly on the floor and he is entirely comfortable.

To work through a test of this character requires anywhere from 15 to 30 minutes, depending on the child. It is wiser to set up your pictures and leave the child alone with his play. The pictures must be very simple.

#### **The Block**

#### **Selection Method**

About a year ago Dr. G. W. Bailey, of Cortland, N.Y., brought to my attention an entirely new idea and method of sight-testing. This is decidedly the best method for testing the vision of small children that has yet appeared.

He had purchased a few cut-out wooden animals of the Noah's Ark type, and a few cut-out wooden letters. These were from one-and-a-half to two inches high. Of these he had made enlarged drawings of various sizes, according to the 5ft. block formula for various distances. These drawings were on architect's tracing cloth, which is translucent. The drawings were



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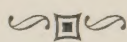


exposure to scarlet was harmful, and even too much staring at at fire was considered harmful as it might lead to a cataract.

The bathing of the eyes in clean, soft, cold water was so beneficial that most people knew its advantages. The compiler of the "Panorama," however, stated that early morning was not the best time for this operation, as in the early morning the eyes were refreshed. The best time was noon when the eyes were beginning to tire.

Other sections of the volume dealt with burning lenses, mirrors, camera obscuras, magic lanterns, microscopes of all kinds, telescopes, micrometers and megascopes. The megascope was designed for examining the larger sort of small objects. It was a framework with a handle, and the framework was in three sections on a swivel, each section containing a lens. By looking through one section only articles were magnified, but the sections could be used in combination to get seven different magnifying powers, for each of the three lenses was different from the others.

At the end of the section on optics was printed "An Abstract of Optics" which contained thirty-four points, the first of which was "The particles of light, which are inconceivably small, proceed from luminous bodies in right lines," and the last of which was "The binocular telescope consists of two telescopes so combined that both eyes may be employed in looking at the same object."



### B.O.A. 1934 Foundation Lecture

The B.O.A. 1934 Foundation Lecture was delivered by the Astronomer Royal, Dr. H. Spencer Jones, F.R.S., at the Royal Institution on February 28th. He took as his subject "The Eye and Astronomical Observation." A detailed report of the lecture will appear in the "British Journal of Physiological Optics."



## Bayley's "Preservation of the Eiesight"

We reproduce below and on the succeeding pages, in facsimile, the whole of a valuable little book recently acquired by the Library of the British Optical Association.

Bayley's "Briefe Treatise touching the Preservation of the Eiesight, consisting partly in Good Order of Diet and partly in Use of Medicines," was published in 1586, apparently printed for the author's friends. The book is of great rarity in any edition. The edition to which the B.O.A. copy belongs appeared in 1602. Only two editions prior to this are recorded in the Short Title Catalogue, and only four copies are known to exist of this edition.

It has been asserted that this work is the first English treatise on ophthalmology. John of Arderne's "De Cura

(Continued on page 162)



A

### BRIEFE

TREATISE TOV.

ching the preservation of

*the eie-sight, consisting partly*

*in good order of diet, and partly*

*in vlc of medicines.*

*The sixte Edition.*

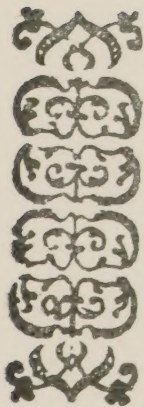
Doctor  Baile  
M<sup>W</sup> R<sup>34</sup>

AT OXFORD,

By IOSEPH BARNES, Printer to  
*the Vniuersitie. 1602.*



some order, as may be fittest for all sortes of men to continue in perfection their sighte, I thought not good to insert any discourse of the diseases of the eies, which will require a long treatise, and cannot well be executed, but by men which haue skill in the arte of physicke. Therefore it seemed meete vnto me at this time to omit that part, and to leaue the reader for the knowledge & cure of such diseases to the professors thereof, by whose helpe they may receiue remedy of all infirmities and affectes, vvhich shall happen to the eies: purposing in this little treatise onely to declare, how the sight might bee  
long



ccasioned thorough certain speeches had with some of mine Honourable good friendes, to write mine opinion of meanes to preserve the sighte in good integrity, I haue performed the same in this little pamphlet, wherein I haue directed my pen rather to leaue rules for those, vvhich haue not in themselves sufficient knowledge, the to satisfie the learned: vvhich I knowe can devise much better meanes & remedies And my intent beeing only to set downe  
A 2 some



## A breese Treatise concerning the preservation of the *eye sight.*



He preservation of the sight doth consist, partly in good order of diet, partly in vñe of medicines.

Concerning diet: Diet some things hurtful are to be chosen.

ed, & some things comfortable to the sight are to be vsed: wherefore they, which may chose their habitations, in this respect, may make election of aire cleare, declining to Aire moderate heate & drynesse: cold & moyst are, & thicke, misty, and rayny weather is hurtfull: it is best therefore to abide in drie places, frõ moory, marsh, & watrish grounds & specially to provide, that the fire of the dwelling be not betweene the wet places and the sun: southerne windes do hurt the <sup>Winder</sup> sight: so do low roomes: places full of dust <sup>Dust</sup> and smokie are noysome. <sup>Sawke</sup>

<sup>Meates</sup> Meates are best which are easie to be digested, & which doe not stay long in the <sup>Stomacke</sup> **A 4**

long continued in his integrity, by such common order as may of all men in their trade of life be reasonably followed, leaving all other harder matters to a farther direction of the learned And now following the laudable custome begun in ancient time, and continued in these our daies of presenting friendes with new-yeares gifts, for lacke of other things of greater price, I offer vnto you this little pamphlet, as a signification of my good wil, wishing that the same may be a tokē of many good & prosperous yeares, which God the giver of all goodnes, send vnto you.

**A 3**



2

stomacke: amongst such a young henne is greatly commended: so is Partridge and Pheasant. *Rasis* praiseth the young starne, & the quail: so doe all writers the Doue both tame and wyld, but chiefly the wyld Doue, which (as *Zoar* writeth) hath especiall vertue against the weakenesse of the sight, which cometh by defect of spirites, and the rather, if the same be sod with rape rootes, and turnep rootes: for it is accorded by all writers, that the turnep hath great facultie to doe good to the eies, and to preserue the sight. Grosse and sluny meates, and all water-foule are dispraised. Of small birdes, the martin, the swallow, the iay and pie, the witwall, the specht are noted very hurtfull to the sight: and albeit these birds are seldome, or not at all vsed of the better sort, yet common people happily may be compelled to eate them. No fish is accounted good: yet some fishes, which doe skoure in grauely places, being sauerly sodden with white wine, fenel, cicbright, sage, perslie, &c. may at some times be eaten: & so a little lault-fish moderately taken doth no great harme. Flesh sodden with fenell, cicbright, mintes, sage, &c. is reputed best; next

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next are roasted meates, flesh fried with butter or oyle is to be reiected, then trais, and feete of beasts are not so good, nor the braines for the most part, yet the braines of an hare, of a cony, and of pigeons are said to quicken the sight.

Milke and all thinges made thereof are found by experience to induce dimnesse of sight: reare roasted, reare sodden, or poached egges are hole some, especially eaten with the powder of cicbright, fried egges and hard are blamed.

Of fauces, veruice, viniger of wine, and Sauces, the iuice of limonds, are accounted best; Pomgranats, not so good.

Of spices, cinnamon is commended by *Spices. Avicenna*, as speciall good for the webbe of the cie, and for dimnesse of the sight: so is saffron; ginger, both inwardly taken, and outwardly applyed, doth singularly cleare the sight: cloues, mace, and nutmegs, and all three kindes of peppers, may bee vsed. Suger is convenient to condite things, but Suger honie is better: no oile is good, saue pile Oile olue called sallet oile, and that is better the butter.

Albeit few raw hearbes in common vie for Raw herbs.

Fish.

Preparation of  
meates.



4.

for sallots are commended, except fenell, eie-bright, young sage, terragone, which are very good: yet these are to be avoided as most hurtfull, namely lettis, coleworts, cabbages, beets, spinage purflane, buddes of dill, garlike, chibbols, onions, skallions, &c. Capers may be eaten: Olives not so good: radish rootes, persnep rootes, are greatly dispraised: carrot rootes, the buds of asperage may bee eaten, but the turnup or raperoote, and the newew roote are above all other noted for excellencie to preserve the sight, and to that purpose many doe preserve with sugar these rootes, & eat them as sucket.

Capers.  
Olives.  
Rootes.

The Rape  
& Turnep.

The most kindes of fruits are hurtfull to the sight: yet peares and the better kindes of apples, may bee eaten with the powder of eiebright, or with fenell seeds thinly incrusted with fine sugar: figs are very good, not only for the sight, but also to open, scour, and to cleane the brest, liver, stomacke and kidneies: so are raisons. which have a speciall propertie to strengthen the liver: nuts are very evil, for that they do fill the head: the walnut more tollerable then the hasell nut, chellnuts are very windie, bet.

Fruites.  
Peares.  
Apples.

Figges.

Raisons.

Nuts.

3.

better friendes for *Venus*, then for the eies: dates are not commended, nor mulberries.

Dates.  
Confects.

Confects made with fine sugar & thinly incrusted about with turnep seedes, & new seedes, fenil seedes, anise leeds almonds, pine apple kernels, ginger, cinnamon, the powder of eiebright, &c. are reputed as very good meanes to continue the sight: likewise in the preservation of the sight, amongst other things, such drinkes, as are in common use and accustomed, are to be allowed: therefore he that hath vied to drink beer, may not forsake the same & so of ale. Beere.

And in this respect it is not amis at meat to drinke wine, for them which have been accustomed to the same: although wine in some affectes of the eies is forbidden, yet to preserve the sight, wine is not inconvenient, for the vapours of wine are drying, cleare absteriue, & so do consume and extenuate grosse and thicke humours, so it be moderately takē. In this place I do greatly commend their counsels, which do prepare medicinable drinkes with eiebright, & other things comfortable for the sight, to be used in the morning, and at meates, if the patient can well endure so to drinke the

Medicinal  
drinkes.



6.

the same: our authors herein are very ingenious, some addressing drinks with one thing, and some with another.

The simplest and most written of, is with the herbe called of the Arabians *e. Adhill*, in Latine *Euphrasia*, in English *Eiebright*, of whose miraculous vertues in preservation of the sight; *Arnoldus de villa nona* hath written in these wordes: *Eiebright* is good any way taken, either with meat, drinke or medicine, Greene and dry, against all impediments of the sight, whereby the clearnes of the same may be obscured. And hee writeth thus of vvine made with *eiebright*, which hee calleth *Vinum euphrasium*. This vvine (saith he) is made by putting the herbe in the muste or newe vvine, vntill the same wine become cleare to be dronke. By the vse of this wine, olde mens sightes are made youwg, it taketh away the impedimentes of the sight in all men, of all ages, especially in fat men, and such, which do abound with phlegme.

One (saith he) which was blind, and did see nothing in long time, by vsing this wine one yeare, vvas restored to his sight. The herbe is hot and drie, and hath by proper-

tie

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tie of substance, to remove affectes of the sight. And so the powder of the herbe taken in an egge, or dronken in wine, doth wonderfully performe the same. And there are yet aliue (saith he) vvittneses of

good credite, vvhich haue made prooffe heereof in themselues, vvhich could not reade vvithout spectacles, by vse heereof haue recovered their sight to reade small letters. And so *Arnoldus* concludeth, that nothing to doe good to the sight, is to bee compared with wine made with *eiebright*. If the wine be too strong, hee counselleth to alay the same vvith fenell water, and to that intention, you may also adde sugar.

In countries vvhich for their common drinckes do vse wine and water, they alway do mingle things for the sight in wine, and not in water: for wine in truth is a fitter liquor to receiue the qualities and to carie the same to the eies, then water: vvhich thinges they do put in the muste, and so let it stand, vntill the wine be ripe, and ready to be dronken, and so doe vse it.

Not vvithstanding in other countries vvhich haue other vsuall drinckes, the same thinges may be put in their common drinckes, meade,

So

Drinke  
made with  
*eiebright*.

*Arnoldus de  
villa nona.*

The praise  
of *eie-  
bright* for  
the sight.

*Eiebright  
VVine.*

*Eiebright  
taken in an  
egge.*

*Eiebright  
may bee  
vved in  
beere, in  
ale, or  
meade.*



8

So some haue put them in ale, some in beere, and some in meade, and no doubt but all these meanes are very good according to the vsage and disposition of the partie. So even in this our countrie, they which either by vse or by constitution of body, may wel beare the drinking of wine, may well compound the same with things good for the sight: others of hot complexions and drie, not greatly accustomed to wine, may of ale, beere, and meade make such drinks, because in the North countries, ale and beere are the vsuall and common drinks, and in some places, meade also is much vsed: therefore in mine opinion it is convenient for most men, to make these drinks with ale, beere, and meade, rather then with wine: and meade assuredly is a very convenient thinge for them which can well away with bony.

How cie-  
bright  
wine may  
be vied

Touching the direction of those which haue bin accustomed to drinke wine, I do nothing doubt, but that they may without offence beare such drinks for the sight compounded with wine, to rake a draught in the morning, especially if they alay the same with the distilled water of fenell, ac-

ording

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cording to *Arvelus* counsell. And for this purpose, choyse may bee made of verie good white wine, and the thinges may be mingled in the countries where the wine doth growe, notwithstanding in that our most vsed drinke with meat is ale, or beere, these are very convenient to receiue these thinges for the sight, and absolutely better then wine, if yee like to drinke the same with meate: as our authors doe counsell.

Which ale I thinke better to be made with grout according to the olde order of brewing. with grout. ing. And so the thinges for the sight may

be sodden in the grout, or other way put in the drinke, when it is newly clenfed, & put into the vessell in vvhich it is tunned to be kept, that in the working of the drinke in the vessell, the vertues and qualities of the thinges may bee drawen and receiued into the same. When these thinges are compounded in meade, then the same are sodden with the honie, in such order as other herbes are sodden, when they make methegline.

I thinke it best to begin with the simplest order to compound ale or beere to each mans best liking with ciebright onely,

ta-

The vse of  
ciebright  
ale, and of  
ciebright  
beere.

Ale made  
with grout.  
How to  
make cie-  
bright ale  
and beere.

Ciebright  
meade.



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taking to every gallon of the drink a great handfull of the herbe, and bind it together, or put it in raw and thinne twisell of silke, and so tie the same by a string to the rap of the vessell that the herbe may hang in the middest of the drinke, not too low in the grownd, neither too high in the barme, being put into the drinke vvhhen it is newlie clensted: let all vvork together vntill the drinke be cleare and ripe, to bee drunken according to the common vse, and then ye may drinke of it at pleasure in the morning fasting, and at meate also if you will, and can vvell like thereof; and most men may like to drinke it, because this herbe doeth yeelde no vngratefull taste, but rather with a pleasant sapour doth commend the drinke. It were not amisse to a void windines, to every handfull of the herbe, to adde two drammes of fenell seeds, well dusted, and a little bruised. As I do put this for more proportion to beginne vvithall, that the stomacke be not at the first offended with the strangenes: So alter a time, ye may increase the quantitie, and put to every gallon of the drinke, two handfulls of the herbe, vvherin ye may best be di-

rected

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rected by the taste, that the herbe shall yeelde into the drinke. In the winter season ye may also adde some spices, as ginger, vvhole mace, a few cloues, nutmegs, cinnamon, and make as it were bragget ale: vvhich drinke besides that it doth preserue and cleere the sight, will also helpe digestion, cleanse and cure phlegme, and breake winde.

I can witnes, that many by this simple composition of ciebright and fenell seeds, confirmed haue found great good for their sight, not onelie to continue in good estate, but also that some haue found remedie against the dimnes & other impediments, growing in their sight. In truth once I met an old man in Shropshire called *M. Hoerde*, about the age of 84 yeares, who had at that time perfect sight, and did read small letters very well without spectacles: he tolde me that about the age of 40. yeares, finding his sight to decay, he did vse ciebright in ale for his drinke and did also eate the powder thereof in an egge three daies in a weeke, being so taught of his father; who by the like order continued his sight in good integrity to a very long age. I haue heard the same

B

con-

Fenell seeds.



12

confirmed by many old mē. *Rowland Scot-*  
*locke* an Irish man, Physician to *Queen*  
*Marie*, did affirme for truth, that a Bi-  
shop in Ireland perceiuing his sight to wax  
dimme, about his age of fifty yeares, by the  
use of eiebright take in powder in an egge,  
did liue to the age of 80 yeares, with good  
integrity of sight.

Drin-  
kes  
more com-  
pounded  
for the  
sight.

*W*e do reade of many prinke to pre-  
serue the sight, compounded not of eie-  
bright onely, but many moe thinges ad-  
ded: so some put to it sage, some veruaine  
some celandine, and fenell seedes, anise  
seedes, & the forenamed spices: others ele-  
campane rootes, iris, galengale & cubebs,  
and in truth all these are greatly commen-  
ded to preferue the sight, and may very  
aptly be put in drinckes for the sight: not-  
withstanding, for that we are now to deli-  
uer a drinke for the sight, which may bee  
pleasing, and allowed with meates, mine  
opinion is, that the same ought to be made  
as simple as may be. For if *Galen* in his 6.  
booke *de sanitate tuenda*, doth preferre the  
composition of the medicine termed *dia-*  
*trum piperis*, which hath fewest simples, be-  
uaies best. cause (as he writeth) that is soonest & with  
lesse

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lesse trouble to nature digested: surely the  
drinckes for the sight, which are compoun-  
ded of fewest thinges, are most to bee  
commended, especially when we meane to  
use the same with meate, as all our authors  
do counsel vs. Wherefore, for my part at this  
time, I will onely advise to haue for vlc, eie-  
ther wine, or ale, or beere, according to  
each mans best liking, made as is before  
prescribed with eiebright and fenell seedes.  
& to drinke of the same in the morning, or  
if it so like with meate, as other drinke.

It is holden better to drinke oft & small Drinke of  
draughts at meate, then seldome & great  
draughts; for so meate and drinke will bet-  
ter mingle, and the meate will lesse swimme  
in the stomacke, which giueth caule of ma-  
ny vapors to the head. It is affirmed not  
good to begin the meale with drinke, but  
to eate somewhat before you drinke.

When you drinke wine, if you meane to  
alay the same with water, it is best to min-  
gle to the wine fenell water, or eiebright  
water, & *Montagnana* doth counsell to do  
the same some reasonable time before you  
doe drinke, and not presently vwhen you  
drinke, as commonly men doe.

B 2

Bread

Not best to  
be in the  
meale with  
drinke.

When to  
mingle wa-  
ter with  
wine



14

Breade.

**Bread in our intention is to bee made of fine flower of chofen wheat, alwaie leuened and salted somewhat more, then common bread, well wrought, thoroughly baked, not new nor old, of about a day or two daies old. Vnleuened bread is not accopmed good: and the bread is better, if fenell seedes be wrought with the past; to which purpose some do cause cake to be made of some portion of the dowe, in vvhich they knead the powder of fenell seedes, and the powder of eiebright, and doe eate them in the morning, and after drink the eiebright drinke, and make that a breakfast.**

Evacuatiō.

**As generally in the preservation of health: so especially to continue the sight, it is convenient that the body bee obedient, and doe his office for evacuation accordingly: and if nature herein be slack, it may bee procured with brothes made of loose herbes, as mallowes, violet leaues, mercury, groudsell, great raisons the stones taken out, damaske prunes and currantes: and if neede be of more medicinall things, surely the same must be gentle: for as strong medicines, vvhich make agitation of humors are not good to bee vsed for this intention**

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**rention: so gentle medicines taken in due time, doe great good to the sight: which I doe leaue to the appointment and direction of a learned Phisition. Of all manner of evacuation, these which are done by vomiting are most hurtfull: so are fluxes of blood by the nose. And as belkes doe ease the stomacke, so much belking giueth occasion that fumes doe arise to the fore-part of the head, wherby the sight may be harmed.**

**Nothing is more hurtfull to health then fulnesse. And he that will continue his sight good, must bee carefull of over plentiful feeding, and therefore must end his meales with appetite: and never lay gorge vpon gorge, but so feede, that the former meate may bee concocted, before hee doe eate againe. It is best to make light suppers, & somewhat timely. As modest vse of <sup>Vse of Venus-</sup> ~~we~~ perfourmed in the feare of God in due time, when the meate in the stomacke is digested, and nature is desirous to be disburdened, is to be allowed: so immoderate and vnseasonable vse thereof, doth of all things most hurt the sight, and soonest induce blindness: over much watching is not good.**

B 3



16

good: very long sleepes are more hurtfull the meane sleepes of about vij. houres, are best: yet better to abridge the sleepe & to inlarge watching, then contrariwise, sleepe taken in the night is best, as most naturall, when externall aire doth not distraſt naturs motion, and all externall things concur to helpe sleepe, therefore the moe houres a man doth borrow of the day for sleepes, the worſe. r. it is not good eſpecially to this our purpose, to sleepe immediately after meate: for two houres at the least ought to be put between meate & sleep. Best to begin sleepe vpon the right ſide, & then to turne on the left ſide: to sleepe vp-right vpon the backe is naught generally: to turne vpon the face vvorſer for the ſight. Care muſt bee had that you sleepe not in a chamber, or any place in vvhich the moone doch ſhine.

The moon  
ſhine hurt-  
ful to the  
ſight.

Exerciſes.

Exerciſes are needfull: the ſame beſt, after the bellie hath done his office, that the excrements are avoided: otherwiſe by exerciſe vapours are ſtirred, and doe aſcend more plentifully to the head. All exerciſes muſt be done faſting, and none after meate. And I wiſh you might after meate forbear

writing

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writing by the ſpace of three houres: but if your courſe of life and calling will not ſo permit you, you may herein follow *Monsiagnus* his counſell, to write either ſtanding vpright, or a little leaning and reſting your head vpon your right or left cheek: in no caſe to write bowving your ſelfe forward, & holding downe the head. When opportunity and time will ſerue, frictions with a rough linnen cloth are verie good, which are to be performed thus: firſt to rub the feete, the legges, then the thighes, the hips, the buttockes, aſcending to the ſhoulders and necke vvith ſofe and long rubbings, even vntill the partes begin to wax red. Amongſt orders to remooue the weaknes of the ſight, *Auicenna* vvriteth that the combing of the head is not of leaſt force, which ought to be done every morning faſting backwardes againſt the haire, for it draweth the vapours out of the head, & remooveth them from the ſight.

Mirth, joy, & pleaſantnes of the minde is good: a little anger doth not hurte: immoderat ſorrow, fearfullnes, & al vehement affectiōs are forbidde in al affectes, but in this our caſe chiefly, as moſt hurtful to the ſight.

B 4

To



To preserve the sight by medicines.



HE order to preserve the sight by medicines, doeth consist of things outwardly applied, & inwardly taken. Amongest outward medicines to preserve the sight,

it is accounted a great secret, to smel much to maricrum. So these things following, are found very much to comforte the sight in staying the visible spirits from wasting: *videlicet*, corall, pearle, the stone called *Lapis lazuli*, spectacles of Christalline or cleare *armerius*, & pure glasse, green & skie colours, to dip the eies in colde water, to vvhich purpose, many haue cups made in the forme of an eie, called eie cups: & to wash the eies with Eie cups, the waters or decoctions of eie bright, roses, & veruaine. Some other things are put into the eies to cleare the sight, & to remove impediments which do often grow there: cics to which purpose as approved very good & without hurt, the nices & waters of eie bright, of fenell, of veruaine, of marigolds, of pearlwort are greatly commended. And

*Mon-*

A prepara- *Montagnus* doeth mention a certaine tion of the kinde of preparation of the iuice of fenell, iuice of fenell singular good to preserve the sight from dimnesse, to take the iuice of fenell in the

month of Aprill, and to put it in a vessell of glasse, with a long and narrow necke, and let it stand fifteene daies in the sunne, that it may bee well dried, then remove the glasse softly, that you do not trouble the residue, or groundes, and so powre it into another vessell: and to every halfe pound of the iuice, put an ounce of chosen *Lignum aloes*, beaten into fine powder, and let it staude other fifteene daies in the sun. Then straine it twice through a thick cloth, and keepe the clearest in a vessell of glasse to your vse: you may drop a little hereof into your eies to cleare the sight. And some do distill this wood in a stillatory of glasse, and put the vwater thereof into the eies, and holdethis for a greate secrete as miraculous to preserve the sight. And the same

*Lignum aloes* good for the sight.

*Montagnus* doeth compounde an other medicine more abstersiue to remedie the dimnes of the sight, dissolving in an ounce of the vwater of Rosemarie flowers, two scruples of *Salgemma* very finely powdered,

*Salgemma* doeth cleare the sight.

red,



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red, and filtered, and counselleth to drop the same often into the eyes; affirming by his experience, that it doeth so mightily cleare the sight, that suffusions are thereby wonderfully removed, and especially moistures of the eyes.

I am here also in this place for the cleansing and strenghtning of the eyes especially to commend vnto you the frequent vse of olde and cleare vvhite vine, in which the *Calammar* stone hath bene oftentimes extinguished; and likewise the pure liquor of good sugar-candy dissolved in the white of an egge, being hard roasted and the yolke taken out.

Also our authors do coméd the washing of the eyes with the vrine of a childe, and sometimes to drop the same into the eyes. And for this purpose also they do comend he made, of the ashes of fenell stalkes. We

The vrine  
of a childe.

A lie of fe-  
nel stalkes.

A prepara-  
tion of the  
liuer of a  
goate for  
the sight.

doe read in all our writers great commendations, of a liquor of the liuer of a goate, prepared in manner following. Take the liuer of a male goate, not diseased, nor newly killed: and after it is well washed, pricke it in many places, and fill the same with graines of pepper, and insarce the liuer  
with

with the leaves of fenell and of eiebright, then rost it with a soft fire cleare, not smoakie, vntill it bee reasonably roasted: and in the time of roasting, receiue the liquor which doth distil in a convenient vessel, & apply the same to your vfe.

*Auicenna* in his thirde sen. third booke and fourth treatise, *cap. de debilitate visus*, about all other things doth commend the medicine called *collyrium de selybus*, for that it cleanseth the pores of the eyes, cleareth and conserueth the spirites, mundifieth the moystures or vvaters of the sight: as you may read in *Auicenna* in the foresaide place.

Inward Medicines.



Edicins to be take inwardly are in number many: but I thinke best at this time to mention a few, which are easie to be had, & as of great efficacy most coméd: and

A powder of such the powder following is most simple: yet by experience approved of such force, that many, after their sight hath bin decayed, haue by the vse of it, receiued againe the



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the same perfectlye : the powder is thus made.

Take of the powder of eiebright ℥.iiij. of mace ℥.j. mingle them together, and take thereof the weight of three pence before meate.

*Montanus* in his 92. counsel giveth great A sirup for praise to a sirupe, against the decay of the the sight fight through the weakenes and dimnes of the same, which he compoundeth thus.

Take of the iuices of fenel, } of each  
of vervaine, } ℥.ij.  
of roses,

the leaues of the herbe eiebright } of each  
of endiue, } M.S.  
of celendine,

boyle the herbes in two pints of water untill the halfe be spent : then straine it hard, and mingle the iuices with the decoction, and with sugar according to art make a sirup, which is to be kept in a glasse vessell. You may take two ounces of this sirup in three ounces of the water of eiebright in the morning fasting. In windy bodies hee maketh the sirup thus,  
Take of fenell seedes, } of each  
of anise seedes, } ℥.iiij.

of

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of the herbes of eiebright } of each  
of vervaine, } M.iiij.  
of rose-leaves,  
of celendine. M.j.  
of rhue. M.j. S.

boyle these in water untill halfe be consumed: straine it harde, and with sugar sirupize the decoction : both these sirups are excellent good to defende the sight from dimnesse.

*Mesue* in his booke called *Grabadin*, writing of the diseases of the eyes, aboue all other medicines extollet an electuary vnder the name of *Hemiane*, as having noble vertues to preserve the eyes, and to continue the visible spirites in their clearenesse, which he compoundeth thus.

Take the herbe called *Adbrin*, that is

eiebright, ℥.ij.  
fenell seedes, Drams.v.  
mace,  
cubebes,  
cinamom,  
long-peper,  
cloues, } of each  
Dra.j.

beate all into powder, seale it, then take of good bony clarified, lib.j.



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of the iuice of fenill boyled and clarified, ʒj.

of the iuice of rhue  
of celendine  
boih boiled & clarified,  
of each ʒ. S.

}

boyle all to the height of an electuary, and then put to it the powders according to art, and so reserue it in glasse vessels. You may take hereof the quantity of Dra. iij, in wine as *Mejue* writeth: If wine seeme too hot, you may allay it with fenill water, or with eiebright water: it must bee taken in the morning fasting: and you oughte to forbear the taking of other thinges, by the space of three houres, and so at night, but then you must make a light supper, & sup the more timely.

Where in this little Treatise mention is made of distilled waters, I wish the same to be artificially done in stillatories of glasse, that the qualities of the herbes may remaine in the distilled waters. And therefore I do not allow of the common manner of distilling in stillatories of lead, by the which the watery parts only are drawne.

Distilled  
waters.

FINIS.

(Continued from page 148)

Oculorum," written in the 14th century, has the prior claim, but it is possible to regard Bayley's work as the first serious ophthalmological book in the vernacular.

Walter Bayley was born at Portsham, Dorset, in 1529. He was educated at Winchester and New College, Oxford, taking his M.B. in 1557 and M.D. in 1563. In 1561 he was elected Regius Professor at Oxford, and shortly afterwards became physician to Queen Elizabeth. In 1581 he became a Fellow of the College of Physicians. He died in 1592 and was buried in New College Chapel, where there is an inscription to his memory. When he was in London he lived in Salisbury Court, Fleet Street.



turning to them and not keeping his interest on the game. I have learned another point that I think is very important. If the child is enthroned in the massive, complicated, weird refracting chair, he seems embarrassed, not exactly afraid, but considerably impressed with the strangeness of the whole performance. When I put him at a little table with a little chair, so that his feet rest on the floor and he is physically comfortable and at home, we do not have much trouble. So I have made two inviolable rules: (1) never permit a parent or aunt in the examination room, a big sister or big brother is a help, but parents—never; (2) never use the official refracting chair during a child's subjective tests.

One of the most successful children's practitioners of my acquaintance gets down on the rug (it's kept clean) while he makes the skiametric study. Another successful refractionist specialising with children sits in armchair and holds the child either between his knees or on his lap during the entire examination. About a year ago I designed an instrument table which can be turned down so that ophthalmometer, manuductor, and other apparatus can be brought down to the level of the child sitting in a low chair with his feet on the floor. This is really a success, for the child is physically comfortable and feels at home. It is a little awkward for me to have to sit on an eight-inch high stool with my legs straight out, but my comfort is of small importance beside that of the child.

In all visual testing the child must be seated at a low table with his feet solidly on the floor. Small chairs are necessary. The table may be adjusted to proper height for the little fellow's comfort. The tests must be within their comprehension and interesting, free from excitement or distraction.

I have successfully tested the vision of two-year-old children and had equally complete failure with four and five-year-olds. So, while the testing method as it stands is a long step forward, there is something still to be done to bring it within the comprehension of the very backward child, the one about whose visual efficiency we must be highly concerned. As it now is, the test is perfectly successful with the average child, and adds knowledge that we have never before been able to obtain.

*(To be concluded)*



## Optics in the Year of Waterloo\*

BY C. H. LEA.

If handbooks on arts, sciences and professions had been published once every twenty-five years since men first began to study optics, what a library of information we should have. As it is we must be satisfied with somewhat fragmentary glimpses of optical science in the past, with various compilations, of which "The Panorama" of 1815 is a typical example. This twelve hundred page book devoted ninety-seven closely printed pages to the subject of optics, much of it theoretic, but some of it extremely practical.

A section on spectacles informed readers that spectacles were much to be preferred to hand reading glasses, because the distance at which the glass is held from the eye constantly varies and the eye is thus perpetually strained. Glasses in frames should have the frames bent so that the axes of both glasses were directed to one point, but in choosing spectacles actual trial alone was convincing. People whose eyesight was failing through age were advised to have spectacles which showed objects nearest to their natural state, neither enlarged nor diminished, and which gave a blackness to the letters in a book.

Some hints on the preservation of the sight were added. People with long sight were advised to accustom themselves to read and examine objects at a less distance than was entirely agreeable, while the short-sighted were recommended to adopt a contrary policy. When reading the public were advised to sit so that each eye had the same amount of light, and the practice of reading or writing so that all the light came from one side only was deplored.

The eyes were justly regarded as precious, and they were to be kept from flaming colours or white lights. The Red Indian was said to affix to his forehead a wooden frame with tiny eye holes to protect his eyes when travelling over snow, and a student at Cambridge who found himself affected with dimness of sight had the white walls of his study coloured green, and before long his eyes recovered their former strength.

Scarlet window and bed curtains were condemned because to eyes refreshed by darkness and a night's sleep the sudden

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\*Specially written for the "Dioptric Review."